

What is claimed is:

1. A wideband variable frequency voltage controlled oscillator comprising:

5 an LC resonance circuit for determining an oscillation frequency based on an externally inputted voltage signal;

a negative resistance generating circuit for generating a signal having the oscillation frequency determined by the LC resonance circuit;

10 a buffer circuit for transferring the signal having the oscillation frequency generated by the negative resistance generating circuit to a load; and

a variable capacitor connecting circuit for connecting the negative resistance generating circuit and the buffer circuit to transfer the signal having the oscillation frequency from the negative resistance generating circuit to the buffer circuit.

2. The oscillator of claim 1, wherein the variable capacitor connecting circuit is variably controlled to have a smallest capacitance and a largest capacitance when the oscillation frequency reaches a maximum frequency and a minimum frequency in the oscillation circuit, respectively, thereby increasing a capacitance variation range which determines an oscillation frequency bandwidth.

3. The oscillator of claim 2, wherein the variable capacitor connecting circuit implements a variable capacitance depending on a reverse voltage applied to a P-N junction between a base and a collector in a bipolar
5 junction transistor.

4. The oscillator of claim 2, wherein the variable capacitor connecting circuit implements a variable capacitance depending on a reverse voltage applied a to a P-
10 N junction between a base and an emitter in a bipolar junction transistor.

5. The oscillator of claim 2, wherein the variable capacitor connecting circuit implements a variable
15 capacitance depending on a reverse voltage applied a to a Schottky P-N junction.

6. A Colpitts wideband variable frequency voltage controlled oscillator comprising:

20 an LC resonance circuit for determining an oscillation frequency based on an externally inputted voltage signal;

a negative resistance generating circuit for generating the oscillation frequency determined by the LC resonance circuit; and

25 a variable capacitor connecting circuit for connecting the LC resonance circuit and the negative resistance

generating circuit.

7. The oscillator of claim 6, wherein the variable capacitor connecting circuit is variably controlled to have
5 a smallest capacitance and a largest capacitance when the oscillation frequency reaches a maximum frequency and a minimum frequency in the oscillation circuit, respectively, thereby increasing a capacitance variation range which determines an oscillation frequency bandwidth.

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8. The oscillator of claim 7, wherein the variable capacitor connecting circuit implements a variable capacitance depending on a reverse voltage applied a to a P-N junction between a base and a collector in a bipolar
15 junction transistor.

9. The oscillator of claim 7, wherein the variable capacitor connecting circuit implements a variable capacitance depending on a reverse voltage applied a to a P-
20 N junction between a base and an emitter in a bipolar junction transistor.

10. The oscillator of claim 7, wherein the variable capacitor connecting circuit implements a variable
25 capacitance depending on a reverse voltage applied a to a Schottky P-N junction.